



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/823,162	03/30/2001	Mauro Colombo	G93-059	8115
21706	7590	12/31/2003		
NOTARO AND MICHALOS 100 DUTCH HILL ROAD SUITE 110 ORANGEBURG, NY 10962-2100			EXAMINER CADUGAN, ERICA E	
			ART UNIT	PAPER NUMBER
			3722	

DATE MAILED: 12/31/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/823,162

Applicant(s)

COLOMBO, MAURO

Examiner

Erica E Cadugan

Art Unit

3722

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 25 November 2003.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 29-37 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 31 and 32 is/are allowed.
- 6) ☒ Claim(s) 29,30 and 33-36 is/are rejected.
- 7) ☒ Claim(s) 37 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 11/25/2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
- a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Faxing of Responses to Office Actions

1. In order to reduce pendency and avoid potential delays, TC 3700 is encouraging FAXing of responses to Office Actions directly into the Group at (703) 872-9306. This practice may be used for filing papers not requiring a fee. It may also be used for filing papers which require a fee by applicants who authorize charges to a PTO deposit account. Please identify the examiner and art unit at the top of your cover sheet. Papers submitted via FAX into TC 3700 will be promptly forwarded to the examiner.

Drawings

2. A drawing was attached to the amendment filed 11/25/2003. However, there was no indication of whether this drawing was meant to be a proposed drawing amendment/change, or whether it was just a drawing provided to illustrate some point of the Applicant. In any event, if the drawing is meant to be a proposed drawing amendment/change, there is no marked-up copy of the figure to show changes made in accordance with 37 CFR 1.121, or alternatively, the sheet is not identified as a "replacement sheet" of drawings, and thus, for this reasoning, the drawing submitted 11/25/03, assuming arguendo that it was meant to be an amendment, is not approved.

Additionally, it is noted that if the Figure submitted 11/25/2003 is intended as an exploded view, there are no lines to so indicate in accordance with 37 CFR 1.84.

However, if this is not intended to be an exploded view, then it appears that this figure would constitute new matter. It is noted that Applicant's response filed 11/03 sets forth the following:

The enclosed drawing shows the spindle separate from the head. Please note that elements 23 and 24 are ducts for exhausting chips and are behind the spindle so that they

Art Unit: 3722

do not interfere with removal of the chuck. Ducts 23 and 24 are not supported by the spindle.

However, it is noted that the specification as originally filed does not appear to support that the ducts 23, 24 are not supported by the spindle, nor that they are "behind" the spindle. Note that the specification as originally filed appears to be silent about whether or not the ducts are supported by the spindle and whether they are "behind" the spindle, and that the drawings as originally filed do not clearly support these assertions.

Claim Rejections - 35 USC § 112

3. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

4. Claims 35-36 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The term "rapid" in claim 36 is a relative term which renders the claim indefinite. The term "rapid" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention.

In claim 35, "the coupling of a tool" has no antecedent, and neither does "the other side" in the same claim.

Claim Rejections - 35 USC § 102

5. Claims 29 and 33-34 are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Pat. No. 5,385,436 (Corsi, hereinafter '436).

Art Unit: 3722

'436 teaches a support arm 1 or "structure" movable along three Cartesian axes (col. 1, lines 33-40 for example). Connected to the "structure" 1 is a fork or "first support" 2 that rotates about a "first" axis C via thrust bearing 34 (Figure 1). Chuck 4 "projects" from the fork 2 (Figure 1) and "allows" angular positioning thereof about axis A via bearings 7 (Figure 1). Note that A and C are perpendicular axes (Figure 1). Regarding the interchangeability of the chuck, chuck 4 is considered to be "interchangeable" in that it is "able" to be interchanged with another chuck, i.e., by manually replacing the chuck 4 shown in Figure 1 with another one, whether or not the device has to be taken apart to do so.

Regarding claim 33, note that hub 6, for example, is a support that rotates via the bearings 7, and that the rotation about axis A is "controlled" (col. 3, lines 58-66).

Also regarding claim 33 and the "chuck unit", it is noted that chuck 4 is part of a "chuck unit" as claimed, such as the chuck unit including support 3 and the chuck 4 (see Figure 1).

Regarding claims 34, note that fork 2 "incorporates" a power transmission system including bevel gear pairs 12, 13, etc (Figure 1) connected ultimately to motor 8, and that this power transmission system is coupled to the chuck 4 (Figure 1).

Regarding claim 29, note that the rotational position is fixed or "locked" via racks (col. 1, lines 49-55).

Claim Rejections - 35 USC § 103

6. Claims 35-36, as best understood, are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Pat. No. 5,385,436 (Corsi, hereinafter '436) as applied to claims 33-34 above, and further in view of U.S. Pat. No. 4,652,190 (Corsi, hereinafter '190).

Art Unit: 3722

'436 teaches all aspects of the claimed invention as described in the above rejection based thereon, but does not teach any sort of "ring-shaped chamber connected on one side to exhausting devices and on the other to ducts".

'190 teaches a spindle device including a fork housing 1 that has mounted thereto a prop unit 2 for a mandrel 3 used to rotate a cutting tool (col. 2, lines 20-24, Figures 2, 4). '190 teaches that the fork housing 1 contains a ring chamber 9 (Figure 2) connected on the left side (as viewed in Figure 2) to a suction or "exhausting" device (col. 2, lines 41-46) and connected on the right side thereof (as viewed in Figure 2) to ducts 8 and 10 (Figures 2-3) that terminate "close" to the tool at opening 7 in order to remove the dust machined by the tool (col. 3, lines 25-47).

Regarding claim 36, note that the duct 10 is "coupled" to the ring chamber 9 (Figure 2), that the duct 8 is integral with unit 2 (Figure 2), the duct 8 is coupled to the duct 10, and that the duct 8 rotates with prop unit 2 relative to the duct 10 in fork housing 1 (Figures 2-3).

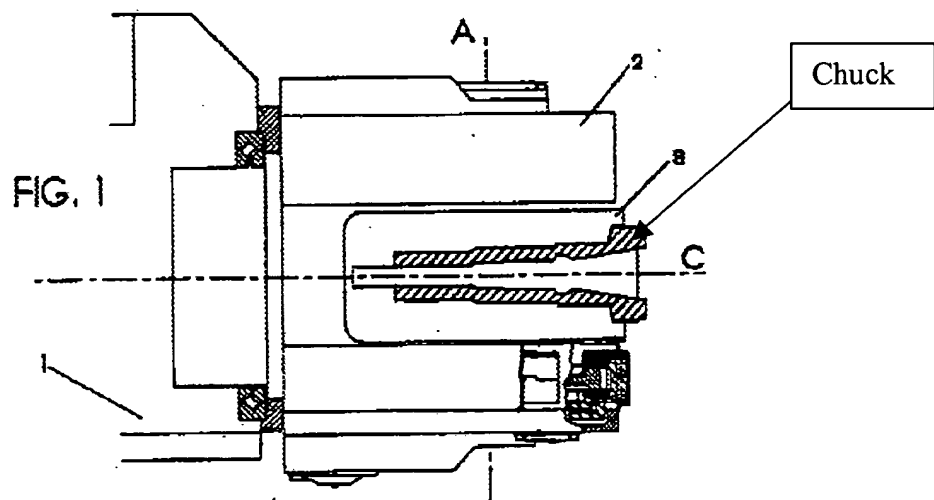
Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have provided the chip/dust exhausting device taught by '190 to the spindle device taught by '436 for the purpose of providing a device for removing machined dust or chips that can be hazardous to the health of the machine operator (col. 1, lines 44-47 of '190, for example).

Claim Rejections - 35 USC § 102/103

7. Claims 29-30, as best understood, are rejected under 35 U.S.C. 102(b) as anticipated by U.S. Pat. No. 5,286,146 to Corsi (hereinafter '146) or, in the alternative, under 35 U.S.C. 103(a) as obvious over '146 in view of U.S. Pat. No. 5,322,494 (Holtey et al.).

Art Unit: 3722

'146 teaches a "first support" 2 adapted for rotation about a "first axis" C and mounted on a structure 1 movable in a set of three Cartesian axes (Figures 1 and 3, col. 1, lines 6-40, for example). Additionally, the chuck structure labeled as "3", shown in Figures 1 and 3 is considered the "second support", and is rotatably mounted to the "first support" 2 for rotation about axis A which is orthogonal to axis C (Figures 1 and 3). Note that the chuck structure 3 has mounted therein a chuck, or tool holding device, labeled "Chuck" in the reproduction of Figure 1 below.



This "chuck" is considered to be "interchangeable" in that it is "able" to be interchanged, i.e., since it is composed of pieces that are separate or non-unitary with the rest of the chuck structure 3, it is able to be removed therefrom and replaced with another chuck. Note that the aforescribed "chuck" is shown as projecting beyond the end of the chuck structure 3 in Figure 1. Note that the "chuck" inherently must be driven by some sort of drive (and thus it must inherently be "coupled" to such a drive) in order for a tool held thereby to be able to rotate about its own axis and thereby machine a workpiece. Alternatively note that the chuck structure 3 (and

Art Unit: 3722

the “chuck”) are driven about axis A via a drive motor and gear which are coupled to a cogwheel 4 that is integral with the chuck structure 3 (col. 2, lines 24-34), and which is thus “connected to” the “chuck” of the chuck structure 3. Note that this drive motor and gear system thus “control” the rotation of the “second support” 3 about axis A. Additionally, ‘146 teaches a device for selectively locking the “second support” 3 in a desired orientation about axis A, which locking device includes pads 5 that are pressed against the sides of cogwheel 4 via hydraulic fluid to “frictionally” lock the “second support” (col. 2, lines 35-47 and 58-64, for example).

Regarding claim 30, note that the locking device includes a pipe 7 along which the pressurized fluid is conveyed (col. 2, lines 39-42), which pipe 7 inherently has walls which are “able” to be deformed. Note that the introduction of pressurized fluid into the pipe will inherently, however minimally, deform the walls of the pipe since such introduction of fluid would apply a force to the pipe. Note that such fluid introduction also serves to “frictionally lock the second support” via the pads 5 described above.

Alternatively, ‘146 is silent about the drive of the tool held by the “chuck” of “second support” 3.

Holtey et al. teaches a plurality of interchangeable spindle units 23 that are interchangeably mounted to a motorized driver 25 (which includes high speed motor 19 and a support and coupling section 21, see col. 6, lines 49-54 and Figures 6 and 1-3) of a universal transfer apparatus 113 that is operable to move the motorized driver 25 along three Cartesian axes (col. 11, lines 10-15 and Figure 6). Holtey specifically teaches that the use of these interchangeable spindle units 23 instead of the conventional system where a tool is held by a conventional tool holder provides the advantage that the spindle bearings may be smaller (col. 4,

Art Unit: 3722

lines 6-20), thus permitting operation of the tool at higher speeds (col. 4, lines 6-20), thus resulting in better finish cuts, faster removal of material, and less vibration or chatter where a thin web of material is being cut (col. 1, lines 20-25).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have substituted a motorized driver and series of interchangeable spindles as taught by Holtey et al. for the conventional tool holder or "chuck" and the chuck structure 3 taught by '146 for the purposes of creating better finish cuts, removing material faster, and creating less vibration or chatter as specifically taught by Holtey et al. (col. 4, lines 6-20 and col. 1, lines 20-25).

Allowable Subject Matter

8. Claims 31-32 are allowed. The reasons for allowance can be found in the preceding office action.

9. Claim 37 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Response to Arguments

10. Applicant's arguments filed 11/25/2003 have been fully considered but they are not persuasive. Many of Applicant's arguments have been considered but are moot in view of the new ground(s) of rejection, and accordingly, applicant's attention is directed to the above rejections. However, Examiner will address those arguments which still pertain.

Note that most of Applicant's arguments in general appear to be directed to the fact that Applicant believes that none of the references show an "interchangeable chuck", which

Art Unit: 3722

interchangeable chuck enables the change of the chuck unit “without disassembling the head” (page 6 of Applicant’s response). However, it is noted that no language precluding a chuck that is exchangeable without disassembling of the head has been set forth in the claims, and that limitations from the specification are not read into the claims. In other words, note that the limitation “interchangeable chuck” is sufficiently broad to cover any chuck that is “able” to be interchanged, whether or not the entire device would have to be taken apart to perform such an interchange, and thus, Applicant has not provided any claim language to define in this way over the references described in the office actions.

Additionally, it is noted that Applicant has also argued other features which are not found in the claims, such as that “the spindle is cantilever-mounted on the spindle head”, etc. Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

Specifically regarding ‘436, Applicant has again asserted that ‘436 does not teach a “replaceable” chuck (page 7 of Applicants’ response). Again, the claim language “interchangeable chuck unit” is sufficiently broad to cover any chuck that is “able” to be interchanged, whether or not the entire device would have to be taken apart to perform such an interchange, and thus, Applicant has not provided any claim language to define in this way over the references described in the office actions. Thus, Applicant’s assertion that the structure of ‘436 “would prevent removal of the chuck 4 without complete disassembly of the operating head” is not persuasive, since there is no claim language **precluding** a device wherein the chuck is interchanged by completely disassembling the operating head. Although the claims are

Art Unit: 3722

interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

It is noted that Applicant has asserted that manually interchanging the chuck unit is “not suggested by Corsi ‘436’”. However, note that this is an inherent property of Corsi ‘436’s device, as it is noted that as viewed in Figure 1 of Corsi, there are several parts that are assembled and thus inherently possess the ability to be taken apart to remove the chuck unit (chuck unit is at least elements 3&4), whether or not such may be easily or quickly undertaken. See Figure 1.

Additionally, it is noted that Applicant’s response filed 11/03 included therewith a drawing already discussed in the above office action, as well as the possible new matter situation that would be created if this drawing was intended to be a proposed drawing change (“possible” is because it is unclear whether the drawing was intended to be an exploded drawing that is just missing its connecting lines as described above). However, Applicant’s response also asserted the following:

The enclosed drawing shows the spindle separate from the head. Please note that elements 23 and 24 are ducts for exhausting chips and are behind the spindle so that they do not interfere with removal of the chuck. Ducts 23 and 24 are not supported by the spindle.

It is unclear from Applicant’s response whether these statements were intended to be relevant to the claims and/or the applied references. However, assuming *arguendo* that they are, it is noted that no language related to the ducts being located “behind the spindle so that they do not interfere with removal of the chuck” or that “ducts 23 and 24 are not supported by the spindle” is found in the claims. Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993). Additionally, it is noted that the specification as

Art Unit: 3722

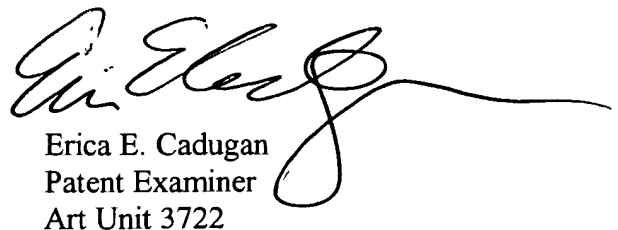
originally filed does not appear to support these assertions as outlined in the above office action with under the "Drawings" section.

Conclusion

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Erica E Cadugan whose telephone number is (703) 308-6395. The examiner can normally be reached on M-F, 7:30 a.m. to 5:00 p.m., alternate Fridays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Andrea L. Wellington can be reached on (703) 308-2159. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9302 for regular communications and (703) 872-9303 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-1148.



Erica E. Cadugan
Patent Examiner
Art Unit 3722

eec
December 19, 2003